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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/934,643	08/23/2001	Hideyuki Arakawa	401346	8744

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EXAMINER

LEE, HSIEN MING

ART UNIT PAPER NUMBER

2823

DATE MAILED: 09/04/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/934,643

Applicant(s)

ARAKAWA, HIDEYUKI

Examiner

Hsien-Ming Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

2. Claims 1-3 and 7-10 are rejected under 35 U.S.C. 102(e) as being anticipated by Fujihira (US 6,426,563).

Fujihira identically teaches the claimed method and device, comprising:

- joining a first ball 12a formed at a tip end of a bonding wire 12c to a first conductive layer 4b (Fig.3A);
- joining the bonding wire 12c to a second conductive layer 8 (Fig.3A);
- mechanically deforming the bonding wire 12c, by a bonding tool such as a capillary 20, on the second conductive layer 8 with the bonding wire 12c joined to the second conductive layer 8 (Fig.5A); and
- joining the portion of the bonding wire 12c deformed to the second conductive layer 8 (Fig.4A);

wherein mechanically deforming the bonding wire 12c includes bending and curving the bonding wire 12c on the second conductive layer 8 (Fig. 4A); and the bonding

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wire 12c is held by the bonding tool 20 and mechanically deforming the bonding wire 12c on the second conductive layer 8 by moving the bonding tool 20 with the bonding wire 12c being joined to the second conductive layer 8 (Figs 4A and 5A).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujihira (US 6,426,563) in view of applicant's admitted prior art (hereinafter refers to as "AAPA").

Fujihira substantially teaches the claimed device as stated above except that the first conductive layer includes an inner lead and the second conductive layer includes a bonding pad. AAPA, however, in an analogous art of ball-to-ball bonding, teaches a first conductive layer, which is a inner lead 10, connected to the first ball 2; and a second conductive layer, which is a bonding pad 6, connected to a second ball 9. Therefore, it would have been obvious to one of the ordinary skill in the art at time of the invention was made to utilize the configuration of Fujihira at a situation of AAPA, wherein the first conductive layer is the inner lead and the second conductive layer is the bonding pad, since by doing so it would provide a semiconductor device with the advantages of high bonding strength and thus reducing breakage of a bonding wire (col. 10, lines 41-44 and 65-66, Fujihira).

5. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujihira ('563) in view of Hikita et al. (US 6,133,637).

Fujihira substantially teaches the claimed device except that the device comprises a base; a first and a second semiconductor element mounted on the base with a die pad interposed between the base and the semiconductor elements; an external terminal on the rear surface of the base; and a sealing resin sealing the first and the second semiconductor elements.

Hikita et al. teach a relevant device (Fig. 25), comprises a base 50, a first 14 and a second 16 semiconductor element mounted on the base 50 with a die pad 21 interposed between the semiconductor element 14 and the base 50; a sealing resin 22 sealing the semiconductor elements 14 and 16; an external terminal 60 on the rear surface of the base 50; a bonding pad 14a on the first semiconductor element 14; and a bonding pad 16a on the second semiconductor element 16.

Therefore, it would have been obvious to one of the ordinary skill in the art at time of the invention was made to incorporate the configuration of Hikita, including the elements stated above, with the device of Fujihira since by doing so it would provide a resin-packaged semiconductor device having a plurality of semiconductor elements, which, in turn, would reduce the manufacturing cost of stacked chips (col. 25, lines 14-20, Hikita et al.).

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hsien-Ming Lee whose telephone number is 703-305-7341. The examiner can normally be reached on M-F (9:00 ~ 5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on 703-308-4918. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-0142 for regular communications and 703-305-0142 for After Final communications.

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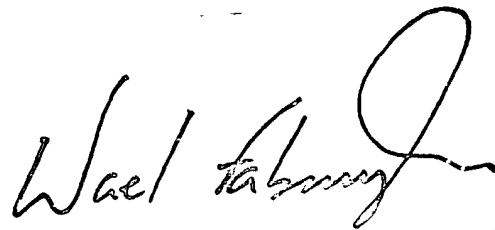
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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.



Hsien Ming Lee
August 29, 2002



SUPERVISORY PRIMARY EXAMINER
TECHNOLOGY CENTER 2800